

2007 North American Cereal Rust Workshop

April 2-4, St. Paul, MN

Continuing Education and Conference Center, University of Minnesota

April 2 1:00-1:10 Welcome, opening comments – Marty Carson, Carol Ishimaru

Session 1: Cereal Rust Surveys

Moderator Jim Kolmer

- 1:10-1:25 Races of wheat and oat stem rust in the United States in 2006–
Yue Jin, USDA-CDL
- 1:25-1:40 Canadian wheat, barley, and oat stem rust in 2006 – Tom Fetch,
AAFC, Winnipeg
- 1:40-1:55 Wheat leaf rust virulence in the United States in 2006 – Dave
Long, USDA-CDL
- 1:55-2:10 Wheat leaf rust (*Puccinia triticina*) in Canada in 2006 – Brent
McCallum, AAFC, Winnipeg
- 2:10-2:25 2006 U.S. Oat crown rust race survey – Marty Carson,
USDA-CDL
- 2:25-2:40 Oat crown rust in Canada in 2006 – James Chong, AAFC,
Winnipeg
- 2:40-2:55 U.S. stripe rust in 2006 – Xianming Chen, USDA, Pullman, WA
- 2:55-3:10 General Discussion of Rust Surveys
- 3:10-3:30 Break

Session 2: Host Resistance

Moderator Yue Jin

- 3:30-3:45 Regional breeding for wheat stripe rust resistance in the Eastern
United States - Dave Marshall, USDA, Raleigh, NC
- 3:45-4:00 Stripe rust resistance in Chinese common wheat cultivars and
advanced lines – Xiachun Xia, National Wheat Improvement
Center, Beijing
- 4:00-4:15 Identification of new genes in wheat and barley for stripe rust
resistance – Xianming Chen, USDA, Pullman, WA
- 4:15-4:30 Cryptic wheat-alien translocations: Bonanza for agriculture
V. Kuraparthi and B.S. Gill, Kansas State University
- 4:30-4:45 Genetics of resistance to wheat leaf rust and stem rust in Sharon
goatgrass (*Aegilops sharonensis*) – P. D. Olivera, E. Millet, Y.
Anikster, and B. Steffenson, University of Minnesota
- 4:45-5:00 Identification of new slow rusting resistance genes in spring wheat
'Brambling' – X. Zhang, R.P. Singh, J.A. Kolmer, J. Huerta-
Espino, Y. Jin, and J.A. Anderson, University of Minnesota,
CIMMYT, USDA, and INIFAP
- 5:00-7:00 Social and viewing of posters
- 7:00 Shuttle service to the Roseville Radisson

April 3

Session 2: Host Resistance (cont.)

- 8:00-8:15 Characterization and mapping of *Ae. tauschii* derived leaf rust resistance genes in wheat – S. Singh, Kansas State University
- 8:15-8:30 Durable leaf rust resistance in wheat – J. A. Kolmer, USDA-CDL
- 8:30-8:45 Stem rust resistance genes effective against race TTKS of *Puccinia graminis* f. sp. *tritici* in wheat – Yue Jin, USDA-CDL
- 8:45-9:00 Resistance to stem rust race TTKS maps to the rpg4/Rpg5 complex of chromosome 7(5H) in barley - B. J. Steffenson, Y. Jin, R. Brueggeman, and A. Kleinhofs, University of Minnesota, USDA-CDL, and Washington State University
- 9:00-9:15 Identification of new sources of partial resistance to oat crown rust – Marty Carson, USDA-CDL
- 9:15-9:30 Introgression of TTKS resistance into hard winter wheat - Michael Pumphrey and Robert Bowden, USDA-ARS Manhattan, KS
- 9:30-9:45 General Discussion of Host Resistance
- 9:45-10:15 Break

Session 3: Rust Biology and Taxonomy

Moderator Charlie Barnes

- 10:15-10:30 Developing rapid diagnostic assays for the rusts: collections, sequence analyses and PCR-based DNA hybridization techniques – Sarah Hambleton, AAFC, Ottawa
- 10:30-10:45 Variant with *Sr24* virulence in race TTKS of *Puccinia graminis* f. sp. *tritici* – Yue Jin, USDA-CDL
- 10:45-11:00 Molecular characterization of *Puccinia graminis* f.sp. *tritici* isolates from East Africa – Les Szabo, USDA-CDL
- 11:00-11:15 Population genetics of *Puccinia triticina* in North America M. Ordonez and J. A. Kolmer, USDA-CDL
- 11:15-11:30 Population genetics of *Puccinia triticina* in Central Asia and the Caucasus – J.A. Kolmer and M. Ordonez USDA-CDL
- 11:30-11:45 Population genetics of *Puccinia coronata* f. sp. *avenae* in the U.S. – H. Dambroski and M. L. Carson, USDA-CDL
- 11:45-12:00 Development of microsatellite markers for *Puccinia psidii*, a rust fungus attacking ohia (*Metrosideros polymorpha*) and other Myrtaceae in Hawaii – Shaobin Zong, University of Hawaii
- 12:00-1:15 Lunch
- 1:15-1:30 Aggressiveness: a biologically significant characteristic of *Puccinia striiformis* f.sp. *tritici* - Gene Milus, Univeristy of Arkansas and Mogens Hovmøller and Kristian Kristensen, Aarhus University, Denmark
- 1:30-2:00 General Discussion of Rust Biology and Taxonomy

Session 4: Detection, Surveillance, and Quarantines of Cereal Rusts

Moderator Dave Long

- 2:00-2:15 Rust epidemiology – Alan Roelfs, USDA-CDL (retired)

2:15-2:30	Stem rust of wheat: an Oklahoma perspective – <u>Bob Hunger</u> , Brad Tipton, Jeff Edwards, Art Klatt, and Brett Carver, Oklahoma State University
2:30-2:45	Genetic control of stem rust – the Australian experience – <u>Harbans Bariana</u> , Australian Cereal Rust Control Program
2:45-3:15	Break
3:15-3:30	Leaf rust detection in ND wheat surveys, 1999-2006 – <u>Marcia McMullen</u> , North Dakota State University
3:30-3:45	Wheat rust surveillance – <u>Amor Yahyaoui</u> , ICARDA
3:45-4:00	Early detection and rapid response: Pest/pathogen modeling and early warning through the IPM PIPE – <u>Marty Draper</u> , USDA-CSREES, National Program Leader
4:00-4:15	Rainwater monitoring of rust spores – <u>Charlie Barnes</u> and Les Szabo, USDA-CDL
4:15-4:45	General Discussion of Detection, Surveillance, and Quarantines of Cereal Rusts
6:30 - ?	Dinner at the Roseville Radisson

April 4

Session 5: Molecular Biology and Host-Parasite Interactions

Moderator Les Szabo

8:00-8:15	The <i>Puccinia graminis</i> f.sp. <i>tritici</i> genome project – <u>Les Szabo</u> , USDA-CDL
8:15-8:30	Wheat leaf rust EST sampling from all life cycle stages – <u>Guus Bakkeren</u> , AAFC, Summerland, BC
8:30-8:45	Haustorial cDNAs from <i>Puccinia striiformis</i> – Chuntao Yin, Xianming Chen and <u>Scot Hulbert</u> , Washington State University
8:45-9:00	Barley stem rust resistance genes: cloning, structure and mechanism of action – <u>Andy Kleinhofs</u> and Brian Steffenson, Washington State University
9:00-9:15	Leaf rust resistance gene <i>Lr1</i> , isolated from bread wheat (<i>Triticum aestivum</i> L.) is gene dosage dependant – <u>Sylvie Cloutier</u> , B. McCallum, C. Loutre, C. Feuillet, B. Keller and M.C. Jordan, AAFC, Winnipeg
9:15-9:30	Induction kinetics of defense related genes in rust infected Dyer's Woad – <u>Elizabeth Thomas</u> , Utah State University
9:30-9:45	Genetical genomic dissection of <i>Puccinia graminis</i> TTKS infection in barley: a systems biology approach to rapid development of durable resistance for barley and wheat – <u>Roger Wise</u> , USDA, Ames
9:45-10:00	PR protein gene expression during infection of Thatcher Lr34/Yr18 with leaf rust - <u>D. A. Gaudet</u> , H. Soltanloo, M. Frick, B. Puchalski, A. Laroche, AAFC, Lethbridge
10:00-10:15	Comparative transcription profiling of R gene and race non-specific leaf rust resistance in wheat – <u>Melvin Bolton</u> , J. A. Kolmer, and D. Garvin, USDA, St. Paul
10:15-10:45	Break
10:45-11:00	General Discussion of Molecular Biology and Host-Parasite Interactions of Rusts
11:00-12:00	Lab Updates (open forum)
12:00	Adjourn